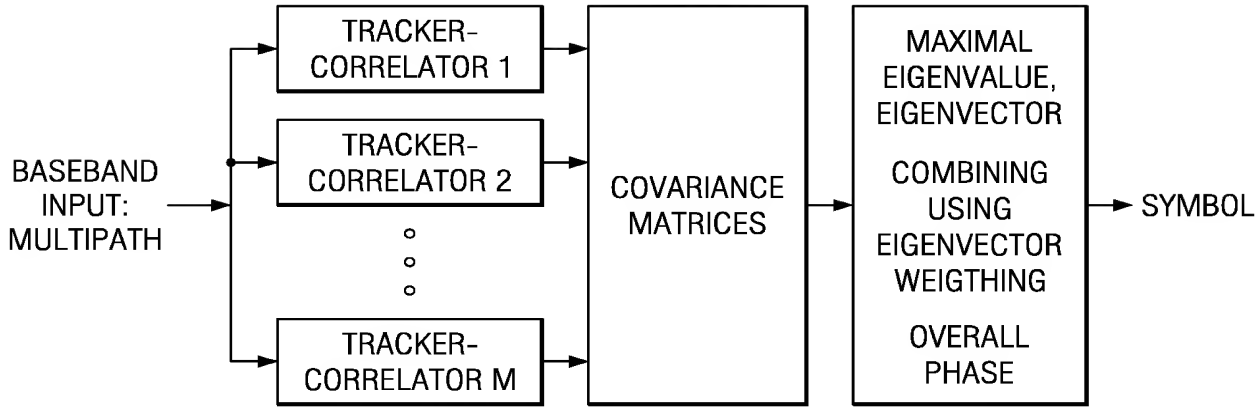
BASEBAND
INPUT:
MULTIPATH
TRACKER-
CORRELATOR 1
TRACKER-
CORRELATOR 2
TRACKER-
CORRELATOR M
COVARIANCE
MATRICES
MAXIMAL
EIGENVALUE,
EIGENVECTOR
COMBINING
USING
EIGENVECTOR
WEIGTHING
OVERALL
PHASE
SYMBOL

FIG. 1a

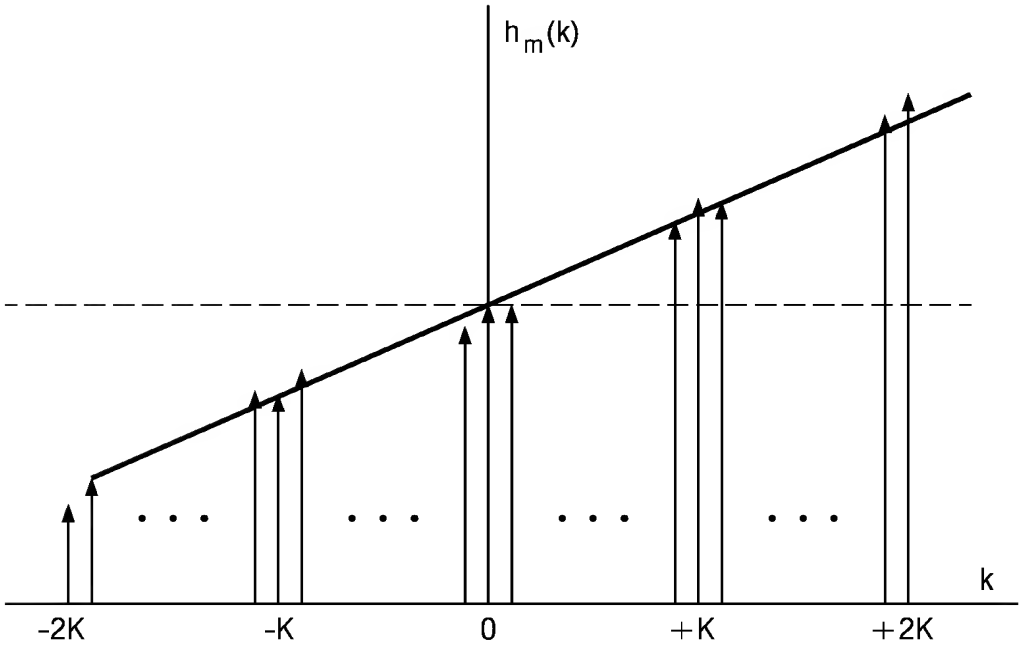
h m(k)
k
-2K
-K
0
+K
+2K

FIG. 1b

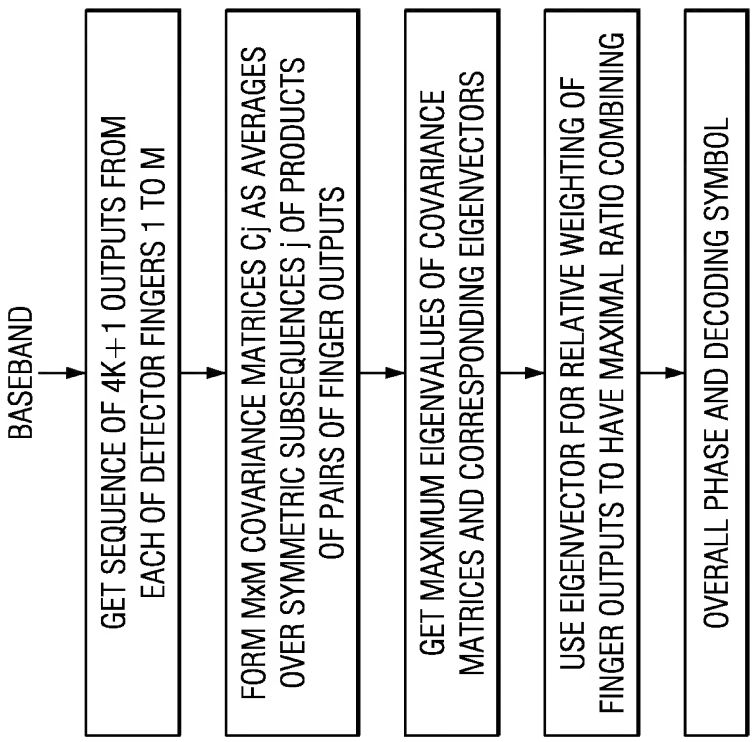
BASEBAND
GET SEQUENCE OF 4K+1 OUTPUTS FROM EACH OF DETECTOR FINGERS 1 TO M
FORM MxM COVARIANCE MATRICES Cj AS AVERAGES OVER SYMMETRIC SUBSEQUENCES j OF PRODUCTS OF PAIRS OF FINGER OUTPUTS
GET MAXIMUM EIGENVALUES OF COVARIANCE MATRICES AND CORRESPONDING EIGENVECTORS
USE EIGENVECTOR FOR RELATIVE WEIGHTING OF FINGER OUTPUTS TO HAVE MAXIMAL RATIO COMBINING
OVERALL PHASE AND DECODING SYMBOL

FIG. 1c

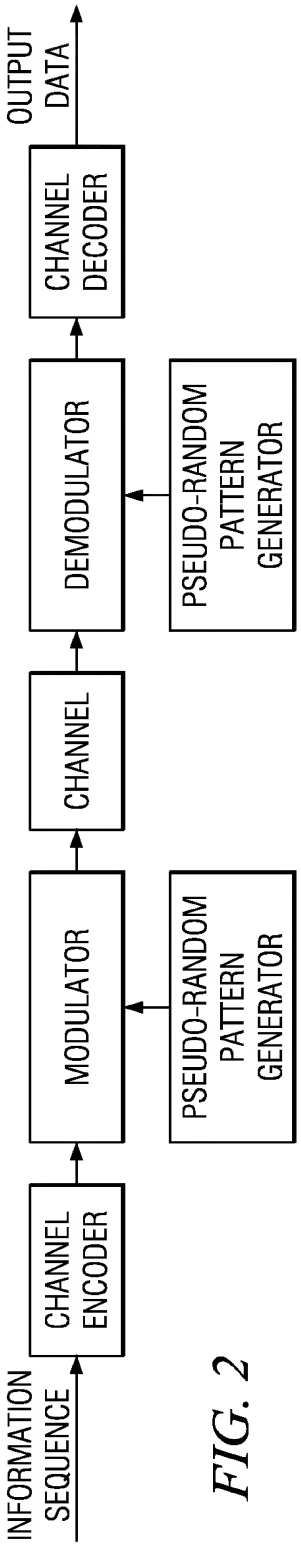
INFORMATION SEQUENCE
CHANNEL ENCODER
MODULATOR
PSEUDO-RANDOM PATTERN GENERATOR
CHANNEL
DEMODULATOR
PSEUDO-RANDOM PATTERN GENERATOR
CHANNEL DECODER
OUTPUT DATA

FIG. 2

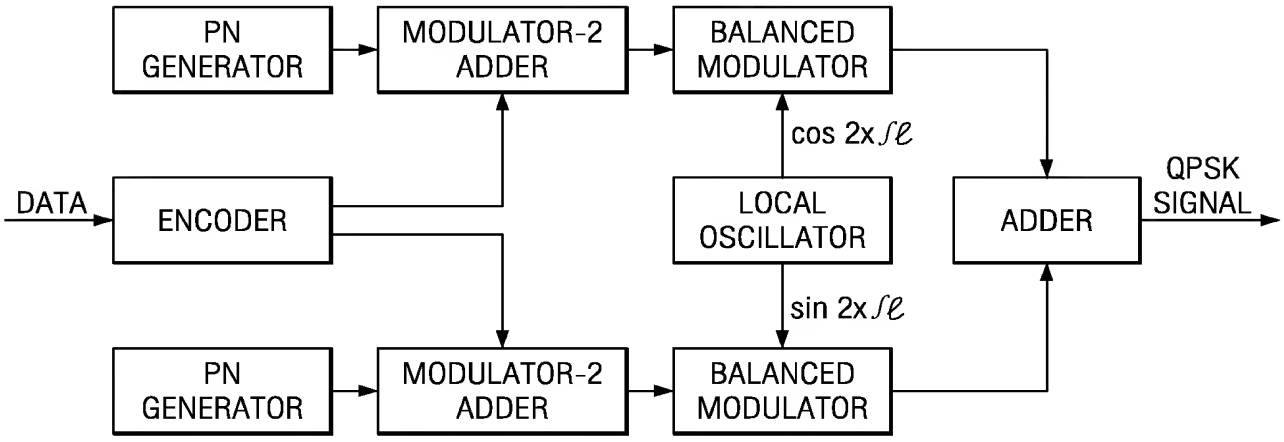
PN GENERATOR
MODULATOR-2 ADDER
BALANCED MODULATOR
cos 2x∫ℓ
DATA
ENCODER
LOCAL OSCILLATOR
ADDER
QPSK SIGNAL
sin 2x∫ℓ
PN GENERATOR
MODULATOR-2 ADDER
BALANCED MODULATOR

FIG. 3

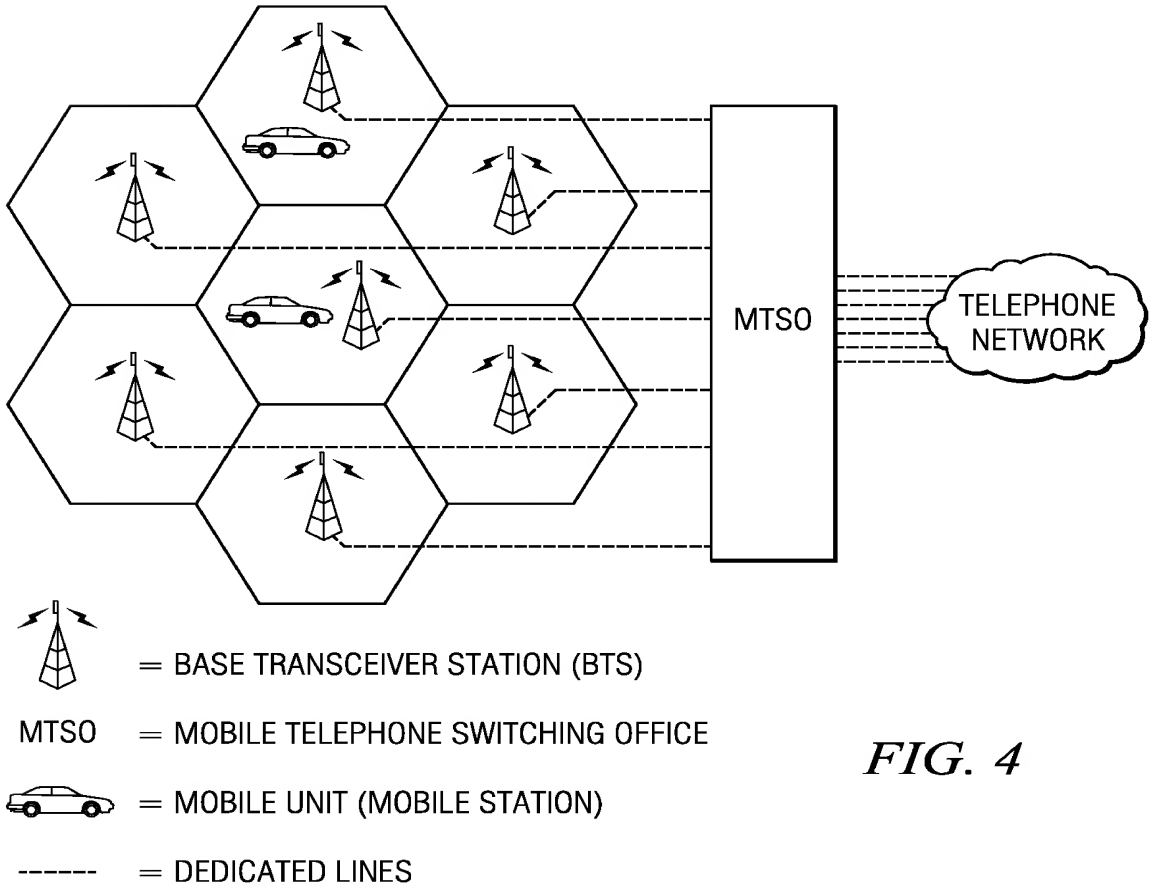
MTSO
TELEPHONE NETWORK
= BASE TRANSCEIVER STATION (BTS)
MTSO = MOBILE TELEPHONE SWITCHING OFFICE
= MOBILE UNIT (MOBILE STATION)
------ = DEDICATED LINES

FIG. 4

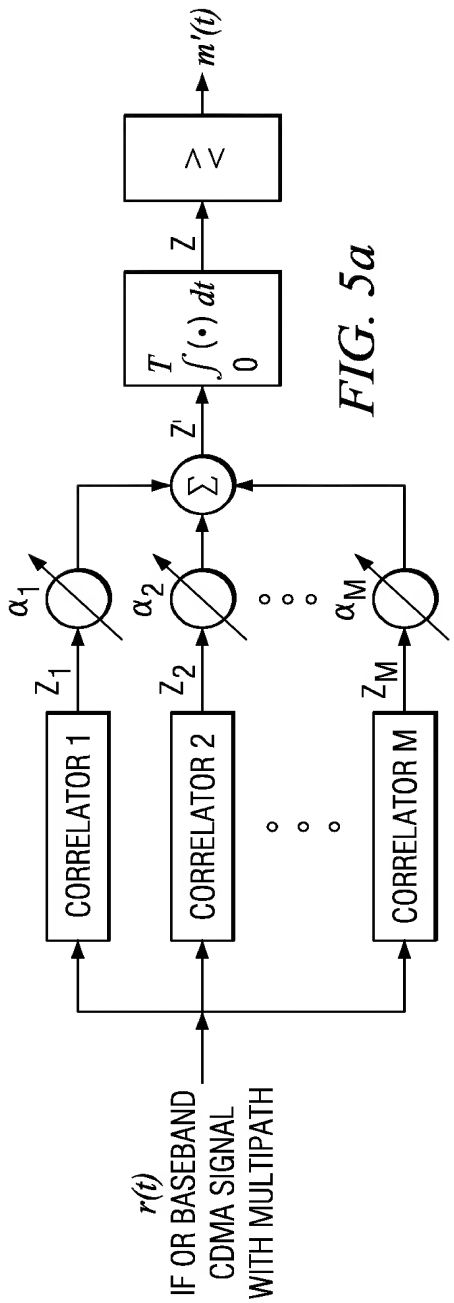
r(t)
IF OR BASEBAND
CDMA SIGNAL
WITH MULTIPATH
CORRELATOR 1
CORRELATOR 2
CORRELATOR M
Z1
Z2
ZM
α1
α2
αM
Σ
Z'
∫ (•) dt
Z
>V
m'(t)

FIG. 5a

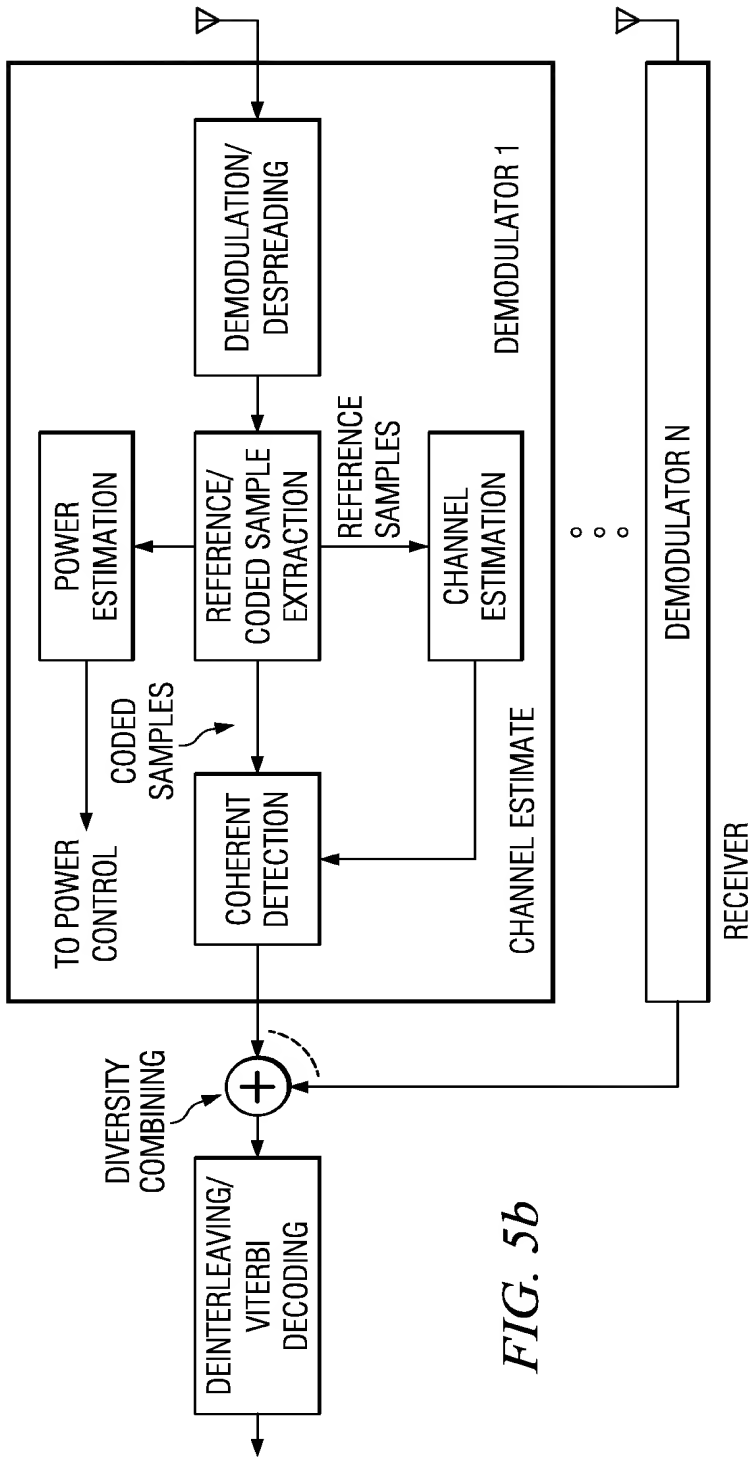
DEINTERLEAVING/
VITERBI
DECODING
DIVERSITY
COMBINING
TO POWER
CONTROL
CODED
SAMPLES
COHERENT
DETECTION
POWER
ESTIMATION
REFERENCE/
CODED SAMPLE
EXTRACTION
REFERENCE
SAMPLES
CHANNEL
ESTIMATION
CHANNEL ESTIMATE
DEMODULATION/
DESPREADING
DEMODULATOR 1
DEMODULATOR N
RECEIVER

FIG. 5b